

## Claims

1           1.     A needle guiding apparatus comprising:

2           a base defining an opening therethrough;

3           a guide platform disposed adjacent to the opening, the guide platform being rotatable  
4 about a rotation axis, the rotation axis extending through the opening and having a common point  
5 along the rotation axis;

6           a pivot disposed at least partially within the guide platform and being rotatable about a  
7 pivot axis that is substantially perpendicular to the rotation axis; and

8           a guide shaft disposed at least partially within the pivot and extending along a  
9 longitudinal axis from a first end of the guide shaft to a second end of the guide shaft, the  
10 longitudinal axis intersecting with the rotation axis at the common point, the guide shaft  
11 comprising a radiopaque material between the first end and a locus along the guide shaft normal  
12 to the longitudinal axis at the common point, the radiopaque material extending to the locus, the  
13 locus located immediately adjacent to a material being less radiopaque than the radiopaque  
14 material.

1           2.     The apparatus of claim 1 wherein the common point is located at the second end.

1           3.     The apparatus of claim 1 wherein the pivot axis intersects the rotation axis at the  
2 common point.

1           4.     The apparatus of claim 1 wherein the guide shaft comprises an inner wall of the  
2 pivot forming a bore.

1           5.     The apparatus of claim 1 wherein the guide shaft is disposed at least partially  
2 within an inner wall in the pivot forming a bore.

1           6.     The apparatus of claim 1 wherein the entire guide shaft between the first end and  
2 the locus comprises the radiopaque material.

1           7.     The apparatus of claim 1 wherein the guide shaft is rotatable about the rotation  
2 axis and the pivot axis.

1           8.     The apparatus of claim 7 further comprising a guide rod that is connected to the  
2 pivot and that is rotatable about the rotation axis and the pivot axis to transfer rotational  
3 movement to the guide shaft.

1 9. The apparatus of claim 8 further comprising a guide rod lock for preventing  
2 movement of the pivot.

1 10. The apparatus of claim 1 further comprising a grid disposed about the rotation  
2 axis.

1 11. The apparatus of claim 1 further comprising a shaft connected to the base, the  
2 shaft extending along a shaft axis perpendicular to the rotation axis.

1 12. The apparatus of claim 11 further comprising an outer rim disposed about the  
2 base, the outer rim being rotatable around the shaft axis.

1 13. The apparatus of claim 12 further comprising an outer rim lock for preventing  
2 relative movement between the outer rim and the base.

1 14. The apparatus of claim 1 further comprising a radiopaque point disposed  
2 proximate the guide platform.

1 15. The apparatus of claim 1 further comprising a radiopaque line segment disposed  
2 proximate the guide platform.

1 16. A method of guiding a needle to a target, the method comprising the steps of:  
2 positioning a fluoro axis in a first fluoro position intersecting a target, the fluoro axis defined by  
3 an energy emitter at a first point and an energy receiver at a second point;

4 selecting a starting point on a needle guiding apparatus comprising:

5 a guide platform being rotatable about a rotation axis, the rotation axis having a  
6 common point along the rotation axis,

7 a pivot disposed at least partially within the guide platform and being rotatable  
8 about a pivot axis that is substantially perpendicular to the rotation axis,

9 a guide shaft disposed at least partially within the pivot and extending along a  
10 longitudinal axis from a first end of the guide shaft to a second end of the guide shaft, the  
11 longitudinal axis intersecting with the rotation axis at the common point, the guide shaft  
12 comprising a radiopaque material between the first end and a locus along the guide shaft  
13 normal to the longitudinal axis at the common point, the radiopaque material extending to  
14 the locus, the locus located immediately adjacent to a material being less radiopaque than  
15 the radiopaque material,

16 the starting point disposed adjacent to the rotation axis, and

17 an aiming line radiating perpendicularly from the rotation axis;  
18 positioning the starting point in a first imaging position, wherein the fluoro axis intersects  
19 the starting point;  
20 positioning the fluoro axis in a second fluoro position intersecting the common point and  
21 the target;  
22 positioning the guide platform such that the aiming line substantially aligns with the  
23 starting point; and  
24 positioning the guide shaft such that the longitudinal axis is parallel with the fluoro axis  
25 in the second fluoro position.

1 17. The method of claim 16 further comprising inserting a needle through the guide  
2 shaft along the longitudinal axis.

1 18. The method of claim 16 further comprising viewing a device for displaying a  
2 visual representation of radiopaque material between the energy emitter and the energy receiver.

1 19. The method of claim 16 wherein the step of positioning the guide platform such  
2 that the aiming line substantially aligns with the starting point occurs prior to the step of  
3 positioning the second fluoro position.